Explaining Climate Inaction: The World is ending, so why does nobody seem to care?

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Abstract

In this review I explore how societal and psychological factors as well as how corporate and governmental decisions influence people's thoughts and behaviors around climate change. I will explore reasons for inaction in climate change mitigation. Some of these obstacles include misinformation, disinformation, denial, distance, identity, social norms and fatigue. I will examine how these roadblocks can be turned into climate change action and mitigation. Some of these mitigation efforts include engaging in climate friendly behaviors such as saving energy or pushing more fossil fuel mitigating policies into governments, and engaging in climate activism. Finally, I provide guidelines for addressing factors to stop climate change inaction and how you can alleviate the harmful effects of climate change.

Rising sea levels, record breaking heat waves, catastrophic wildfires, mass extinctions, melting ice caps, massive flooding; over and over again, we hear warnings of a coming apocalypse, one already set in motion that will ultimately affect the entirety of planet Earth. Yet, inaction is still widespread, many continue living their normal lives, and policies are rarely changed. In fact, fossil fuel usage is expected to increase; According to the International Institute of Sustainable Development, World governments are currently planning on producing more than twice the emissions that would be consistent with a 1.5 degree pathway (SEI 2019).

This article looks at the climate crisis from a psychological lens, and explores why, despite widespread knowledge and scientific consensus on human driven climate change, very little mitigating action has been taken. I will investigate psychological factors that make the climate crisis difficult to think about or act upon and how certain parties may attempt to manipulate people's thinking about the subject. Some obstacles I will look into are misinformation, disinformation, and psychological processes such as beliefs, truth discernment, habits and distance. I will examine how these problems can be avoided, or even turned into climate action efforts.

Simply put, by burning fossil fuels, humans are emitting carbon dioxide into the atmosphere. Carbon can remain in the atmosphere for 100 million years. Carbon dioxide traps the sun's heat and consequently raises temperatures, known as the greenhouse effect (Mitchell, 1989). These rising temperatures cascade into a multitude of environmental consequences.

The most carbon dioxide is emitted from transportation at about 27%, a large amount of which is trade related, followed by electric power (25%), industry at 24%, commercial & residential uses at 13% and agriculture at 11% (EPA 2022).

The IPCC (Intergovernmental Panel on Climate Change) has laid out a goal of limiting global warming to 1.5 degrees celsius or less by 2050 to avoid further repercussions of climate change. This means reaching net zero emissions globally by 2050 (*Net Zero Coalition | United Nations 2022*). Humans emit approximately 33,625 million metric tons of CO2 every year. For reference, since 1880 the earth's temperature has risen by approximately 1 degree celsius. It is expected that with our current policies in place, we will raise the earth's average atmospheric temperature by 2.7 - 3.1 degrees celsius by 2050 (Doerr, 2021). To better understand obstacles in climate change mitigation, we must first understand our thoughts on climate change.

Perception of Climate Change

Anyone who's ever been in an argument, or tried to change their own behavior, will know that changing minds is no easy task. It's no different when it comes to climate change. Many people have preexisting mental barriers that prevent them from accepting climate change as a reality and acting on climate change. Among these is the nature of climate change itself. Climate change is a deeply complex and complicated issue. Historically, it has not been an immediate detriment to quality of life in many places (though this is fast changing). Because people are often unaware of things in their surroundings that don't cause them immediate suffering, the complex nature of climate change makes it possible for people to discount it, as in undervalue it due to it being far away in space or time (Gifford, 2011). Spence and colleagues define viewing something as more distant or farther away as psychological distance. Psychological distance has three main aspects: spatial/geographic distance, which relates to physical remoteness;

temporal distance, as in distance between the perceiver and another object in time; and hypotheticality, or how certain it is that an event will happen. It is suggested that climate change is distant in all of these areas (Spence et al., 2011). A survey of 1822 respondents in Great Britain found that climate change impacts tended to be viewed as more serious for distant places, and personal risks were found to be lower than societal risks (Spence et al., 2011). Some of these beliefs are somewhat true, as climate change disproportionately affects those in the global South, on the opposite side of the world from the respondents. Many of these countries do not have the appropriate financial and technological tools to deal with the impacts of climate change.

The way in which people are asked or told to act on climate change by making sacrifices now disrupts people's lives and is inconsistent with people's typical approaches to distant events. Climate change mitigation requires immediate action undertaken for the promise of distant rewards, like a better world for future generations. These broad goals are distant and can be hard to comprehend. Humans are not particularly keen on picturing life a hundred years from now.

In fact, the inability to understand distant concepts is a well known phenomenon. For example, hyperbolic discounting is the name for the effect in which people prefer to consume immediately as opposed to in the future, even when the rewards are smaller if consumed immediately. This applies to environmental problems, which we often see as far away; a study conducted in 18 countries with over 3000 respondents found that some respondents in 15 of those countries believed that environmental conditions are worse in other places, essentially believing the worst of it will be endured by others (Gifford & Scannel, et al., 2009).

These physical and mental distance factors are not the only thing stopping people from acting on climate change. Many people's lack or refusal to comprehend the climate crisis further halts action. Ignorance is a massive roadblock towards climate action, as many people are simply unaware of the threat of climate change. This could be due to the influence of certain parties, or perhaps they choose not to act on it due to some ideologies and belief systems.

Ideology.

Many people hold ideologies that make climate action seem pointless or illogical. Some people don't think action is necessary because of religious beliefs or supernatural forces. Researchers studied the attitudes of two groups of pacific islanders living on low lying atolls subject to rising tides. They found that one group was purchasing higher lands in Australia, while another group chose not to act, as they believed that God would not break his biblical promise to not flood the Earth again (Mortreux & Barnett, 2009). Other groups use ideology as a way to promote climate skepticism. For example, the Christian organization 'Acton Institute for the Study of Religion and Liberty" is intended to counter evangelical Christians who have expressed climate action beliefs. They have published many pseudo-scientific reports promoting climate skepticism. This organization has received over $850 thousand USD from the Koch Brothers, one of America's largest industries, between 1997-2017 (Greenpeace).

Others may believe that advancements in technology will save them, but this is far from certain. One advancement that has gained traction is carbon capture, a way of removing carbon from the atmosphere. While this technology proves very promising, carbon capture technology is currently at a state where, at the current rate of emissions, we would have to store over a million kilograms of CO_2 a second to approach net zero by 2050. (Baldwin & Lenton, 2020).

Although it may be helpful in the fight, it cannot be the only solution. Belief in free enterprise capitalism is also a strong predictor of denial in climate change, or refusing to believe it exists (Baldwin & Lenton, 2020). Some free enterprise capitalist beliefs like the belief in the freedom of the commons, as in the harvesting of common resources like forests and fisheries for their own self interest, have led to the devastation of resource pools and the environment, further exacerbating the climate crisis. Some people benefit from environmentally destructive enterprises, many of whom have been fortunate enough to benefit from current systems will go to great lengths to defend these systems (Gifford, 2011). When influencing ideologies it is important to consider the information that is essential to doing so, and all the problems that come with the interpretation of it.

The Difficulties of Truth Discernment

It's easy to become overwhelmed with information. Our modern environment might call for fast judgment making and information sorting. Unfortunately, as I will illustrate in this section, our human information processing methods can succumb to biases and often be detrimental to ourselves and others. Humans tend to be cognitive misers, as in we avoid cognitive processes that may consume too many resources (Pennycook & Rand, 2019). When we assess information to determine truth we usually do it in five different ways. We gauge supporting evidence, determine its compatibility with beliefs we already hold, assess the coherence of a statement as well as an idea's acceptance by others, and judge the credibility of the source (Schwarz et al., 2016).

Gauging information. A research paper published by Schwarz and colleagues discusses potential issues with people's ways of gauging information. When gauging the amount of supporting evidence, people tend to do so by seeing how easy it is to retrieve information instead of looking through reliable evidence. When recalling information seems harder, people think there is less of it. When someone has heard a message multiple times, it seems easier to recall. When we hear new messages, we tend to lean towards accepting the idea as being true unless we have reason to think otherwise. In addition, research suggests that listeners often proceed on the assumption that speakers attempt to be correct, relevant and clear, unless evidence gives reason to believe the contrary (Schwarz et al., 2016). Some research has even suggested that to comprehend a statement, we must first temporarily believe it is true. This suggests that belief is a precursor to comprehension, not vice versa (Gilbert, 1991). This provides additional barriers for disproving climate misinformation, as the odds are in favor of believing erroneous information. It is important to treat all climate information with some degree of skepticism. As it is entirely possible that we are not being entirely aware that some forces are attempting to push a narrative onto us.

Assessing compatibility with our beliefs. People also tend to check to see if new claims they've been presented align with their beliefs, ones that don't often provoke negative emotions (Peters et al, 2004). This information is processed less fluently as opposed to information consistent with one's beliefs. This fluently processed information feels more familiar (Schwarz et al, 2007). Essentially, we prefer to consume information that aligns with our worldviews (also known as confirmation bias) and are more likely to reject information that does not. Many theories of cognitive consistency assume that information inconsistent with one's

beliefs elicits negative emotions, and a feeling that something is wrong (Festinger, 1957). Once we accept information that aligns with our worldviews, it is very resistant to change; the alternative, or regarding new information as false, would create inconsistencies or cognitive dissonance. People analyze and use critical thinking more on claims that don't align with these views as opposed to ones that do (Schwarz et al., 2016). If we prefer to consume information that aligns with our worldviews, doing otherwise would essentially be spending energy to prove ourselves wrong. Relying on one's feelings provides an easier route to assessing consistency than research or checking known info (Schwarz et al., 2016). People who hold certain false beliefs about the environment or climate change will likely reject new information that may disprove their beliefs because it is easier and seemingly more beneficial to continue believing old possibly erroneous claims than to accept new ones. For example Republicans, who are far less likely to believe in climate change, also tend to ascribe negative motives to influences shaping scientific research around climate change (Funk & Kennedy 2016). Although it may initially seem tedious, it is important to look into the possible biases that may be stopping us from believing truthful claims regarding climate change. It is possibly more helpful to understand that this may present a major roadblock for others to see climate change as a real threat. It is not easy but certainly necessary to work with others to address this major roadblock.

Coherence. A claim is coherent when it is logical and able to be understood (Laird, 2012) . People tend to believe that more coherently assembled claims are true. In one experiment investigating the impact of coherence on how people rate the truthfulness of information, two groups of participants in a study were presented with verdicts of court cases. One group was presented with a summary of all the evidence of several witnesses involving their motives, and the other was presented with the same information told as a story (Gerrie et al., 2006). It was found that people tended to believe the witnesses more when the evidence was presented in the story format. Once a coherent story has been formed, this story is very change resistant, the larger the base of information the more resistant the belief in the information becomes (Johnson-Laird, 2012). If climate change is presented in ways that seem coherent and understandable to people, they will be more likely to believe claims about the climate crisis.

Assessing general acceptance. When the truth is unclear, we often turn to social consensus for an answer to gauge how popular a belief may be. However, people are often inefficient at this, and will more often try and see if the claim feels familiar (Schwarz et al., 2016). In a study, two groups of individuals were shown two different videos, one in which the same claim regarding public spaces was repeated only once by three people, and another in which it was repeated by one person thrice (Weaver et al, 2007). Weaver and colleagues found that hearing the same statement thrice was almost as influential as the three people stating it once. In another example, the strongest predictor of the spread of wartime rumors during WWII was repetition (Allport and Lepkin 1945). This repetition often leads to pluralistic ignorance, a gap between what people think others believe, and what others actually believe. For example, in 2003, the idea of unilateral military action (only American involvement in the Iraq war) was given prominence in American media, leading to a majority of Americans who supported multilateral action (multiple nations involved) to believe their views were in the minority (Lewandowsky et al., 2012). It is possible that people's beliefs and actions towards climate change could be shared by more people, but seem more uncommon due to the lack of discussion and publicity around action. Therefore, more updated and published polls and metrics regarding people's beliefs towards climate change are needed, and creating an air of clear public consensus may pressure people into environmental action.

Judge the credibility of a source. People are more likely to accept information from credible sources as opposed to ones they deem uncredible (Schwarz et al., 2016). However, our judgment of whether a source is credible can often be flawed. Messages can be perceived as truthful due to superficial reasons. For example, the same statement is perceived to be more accurate when presented in a larger font size, (Fazio et al, 2019). Persuasiveness of a message also increases perceived credibility (Lewandowsky et al., 2012). It's common for one to consult their feelings about a particular source, and try to see if that source feels familiar. Repeatedly seeing a face for example, is likely to increase perceptions of honesty, sincerity and agreement with what is said (Brown et al,). An example of the ease to which many are persuaded was one study that found that messages denying climate change were similarly influential in persuasion to study recipients who were told they were "funded by Exxon" or "funded by viewers like you" (Cho et al, 2011). Since many are familiar with fossil fuel companies, they may simply mistake this familiarity for trustworthy information. This gives these companies the upper hand in terms of manipulation of information. Discrediting fossil fuel think tanks and other sources of misinformation is essential to making sure people do not get misinformed, and legislation is possibly needed in order to restrict the flow of climate misinformation.

Effects of misinformation

As I've established, it can be difficult to distinguish false and correct information, and this can be to the benefit of those who wish to sway public perceptions of climate change. This makes misinformation a valuable tool for many fossil fuel companies. Fossil fuel companies are some of the richest on Earth, and many of them have been aware of the threat of global climate change for decades (Cook et al., 2019). Exxon Mobil and Peabody Energy have been funding climate coalitions and front groups, contrarian scientists, creating astroturf groups, (corporate funded groups that try and emulate grassroots movements) and mounting PR efforts since the Early 90's in order to spread confusion and misinformation regarding climate change (Cook et al., 2019).

These companies have shifted the way that people think about climate change. Some methods include powerful media influence and creating artificial scientific disagreement about climate change. In the 1994 to 1997 global climate change congressional hearings, "five contrarian scientists testified as often as did thousands of mainstream climate scientists publishing literature" (McCright 2007).

Many people have been told that individual mitigating behaviors (conserving electricity, driving less, eating less meat) are key to reducing climate change. However, this is not the best course of climate action, and even the idea of a 'carbon footprint' is a product of the fossil fuel industry. The term itself was coined by British Petroleum (BP) in 2002 in order to shift the blame of climate change onto individuals (Bergan, 2021). Fossil fuel companies partake in shifting the blame of the crisis, pretending to be more environmentally conscious, as well as promoting denial and skepticism of climate change. By doing so they are able to create vast levels of confusion, denial, skepticism and misinformation.

One of the ways fossil fuel companies try to change information regarding climate change is by making people believe that ordinary people are opposed to the effects of mitigation efforts. They often do this via the use of Astroturf groups. Some of these groups include Americans for

Prosperity, FreedomWorks and the Tea Party (Dunlap, 2020). However, possibly the most effective method in attitude towards climate change is the influence corporate interests have had on the Republican party. After the progressivist movements of the 60's, there was a push for a strong Republican party (Meagher 2012). This party's modern prevalence would not have been possible without the help from business interests and philanthropic foundations, many of which were fossil fuel companies (Dunlap, 2020). Making matters worse, in 1987 the Reagan administration repealed the fairness doctrine, a law that "required licensed radio and television broadcasters to present fair and balanced coverage of controversial issues of interest to their communities," (Stefon, 2021). This led to a boom in the medium of right wing talk radio, and later the launch of Fox News. Fox viewers have been found to have a heightened level of climate change denial than viewers of other stations, with 43% of Fox audiences stating they are worried about climate change compared to 80%+ for Networks like CNN/MSNBC and NPR (Gustafson et al, 2020).

Misinformation, or false or inaccurate information, can be very powerful and persuasive. This fake news, or news created with the intent to misinform has been found to be especially effective in the online age. Facebook engagement for the most viral fake news stories was found to be greater than the most viral real news stories in the 3 months preceding the 2016 US General Election. Additionally, among stories that have been fact checked, fake stories tend to spread farther and wider than real ones (Pennycook & Rand, 2019). In short certain parties are actively in the process of psychologically manipulating people to change their attitudes.

While people's subscription to certain beliefs and possession of certain attitudes is influential in determining whether they may or may not engage in mitigation, it's only one piece of the puzzle. To understand what can lead to action, we will have to look more into our patterns of behaviors, as individuals and as a society.

Habits

A habit is defined as "an acquired mode of behavior that has become nearly or completely involuntary"(Marriam-Webster). Reward sensitive parts of the brain begin to associate being in a specific situation, such as sitting down in a car, to perform a specific habit, such as fastening a seatbelt (Mazar et al., 2022). It is estimated that 43% of our daily actions are habitual (Palmer, 2020). This poses a problem when people's automatic daily habits such as purchasing certain goods or driving consume large amounts of energy, mainly generated using fossil fuels. There is some promise in encouraging people to make more environmentally conscious choices by altering habit triggers. For example, some German households were offered a default energy contract using standard energy sources, with an option to switch to a green alternative, while others were given the same green option as the default. Only 8% of the first group switched to the green option, while 70% of the second group stuck with the default choice (Ebeling, F., & Lotz, S. 2015).

Modifying Habit Friction: Another habit changing strategy that can be deployed is "modifying friction" to reduce environmentally harmful actions and promote beneficial ones. This

effect can be somewhat significant even if the change is seemingly minor. It was found that a minor delay of 16 seconds in closing elevator doors at a university reduced elevator trips, cutting elevator energy usage by a third (Houten, 1981). Interestingly, the authors found that signs posted encouraging people to take the stairs had no observed effect. Another study found that removing trays in a university dining hall added friction to the habit of food piling, reducing food waste by 18% (Thiagarajah et al 2013).

The ways in which our cities are built has a significant effect on our habits. Especially pertaining to transportation. Urban planners can design cities in order to decrease traffic and car use while elevating cyclist and pedestrian usage (Mazar et al., 2022). A recent strategy known as traffic calming was deployed in some European roads. Streets were specifically designed to reduce traffic speed, such as building speed bumps. These methods are created with safety in mind but have additionally reduced car usage (Ewing, 2008).

The Netherlands has deployed an idea known as Woonerf, or living street, in which streets are designed to emphasize walking and cycling as opposed to driving. Many European cities have also introduced "Tempo 30" zones in which driving over 30 kilometers per hour is forbidden (Ewing, 2008). Similar techniques like one way streets, traffic free zones and other features with the intent to discourage car use have been deployed. These introduce problems for drivers, like having to drive slowly while taking longer routes and sharing the road with non drivers, which creates friction for drivers, and makes the habit harder to maintain. Implementing structures like this likely have much more effect on reducing high emission actions like driving than trying to influence individual behaviors.

Some ideas seem even more unusual, but make environmentally destructive action more difficult. For example, the experience of paying with cash represents a tangible visual parting of one with their money, as opposed to the simple swipe of a credit card. So there is some incentive to make consumers pay with cash for more environmentally damaging purchases than using credit cards for those who have access to them (Agarwal et al, 2016). Singapore's Electronic Road Pricing Toll system bills drivers automatically as they pass through gates, emitting a sound and displaying a decrease in the drivers balance. Just a 1% increase in tolls in 2013 increased public transit rates by 12-20% during morning commute hours (Agarwal, 2016). Another study found that households that were given a smart in-home display decreased energy use by 11-14% while ones that didn't receive the device didn't decrease by anything at all. A similar study in Japan reported a 16% decrease in energy usage which persisted after the removal of the device. These strategies reduced transportation based emissions and created habits of using more environmentally friendly ways of transportation.

Strategies like forcing people to pay for plastic bags can be especially effective (Convery et al 2007). The same can be said about removing free parking, as parking spaces in the US use more land than housing (Shoup, D. 2014). In one workplace, doing so reduced the number of solo commuters by 41%, even in car-centric Southern California (California Center for Jobs and the Economy 2016). A similar case was in Singapore, in which a 10 week free pass on the

Singapore subway prior to morning commuter hours was correlated with a 6% increase in commuting in that time frame, even after the pass expired (Yang, N., & Lim, Y. L 2018).

Some of these policies at first are undesirable, but as it turns out over time familiarity can make them more likable, and they can often have positive effects on people's lives. Congestion driving, for example, which charges people for driving at peak hours, was first unpopular, only garnering 49% support in Durham England, this eventually rose to 70%, possibly as a result of reduced congestion, easier parking and less pollution due to congestion pricing (Santos, 2004).

Habits are often unnoticeable, and most of the time they can contribute to the climate crisis without our knowledge. However, if changes to people's habits are done on a large scale such as in the cases above, it can lead to a decrease in emissions while potentially improving the lives of the people affected. It's up to people in small and large positions of power, such as city planners and transit officials to implement habit changing infrastructure, and up to everyone else to make sure that they do just that.

What can we do?

What can I do?

The unfortunate truth is that individual action does not account for much change. If you eliminated 100% of your personal emissions for the rest of your life, you would save the world the equivalent of 1 second of global emissions (Ritchie et al., 2020). This doesn't mean that individual action is useless, only that it's trivial to try to fight climate change alone. As I've previously mentioned, education is a crucial factor in leading to change. This paper is a step forward in educating yourself about climate change, it can give examples on the barriers stopping people from action, but reading it is not enough. Educating yourself and others can possibly inspire people to make changes, even if it is not a surefire way to change behaviors, it can be a start to stirring climate debates and keeping climate change in the collective consciousness. Individual action is often pushed onto individuals, sometimes by fossil fuel interests, this may serve the purpose of convincing individuals that they're singular actions can fix the crisis as well as distracting them from the root causes of the issue, such as BP's carbon footprint campaign (Bergan 2021). However, some actions have more influence than others, for example, fuel efficient driving has 20 times more impact than installing low flow showerheads or changing laundry temperatures (Dietz et al 2020).

Policy changes are needed in order to solve the climate crisis. It is crucial that individuals use our voices and votes in order to elect people who will serve the best interest of the environment and the planet. Whether this be done by simply voting, protests, organizing of groups or civil disobedience. But one thing is for certain, for there to be steps towards mitigation it needs to be sweeping and undertaken by large amounts of people.

Collective action.

Collective action is essential in changing social or political landscapes. Economists have generally taken for granted that groups of people with similar interests will act to further those interests. However, if every participant in a group were able to reap the rewards of collective action, there is no primary incentive for one party to engage in collective action. An example is, farmers who grow a certain crop have a shared interest in a beneficial tariff, but any one farmer has no incentive to pay for a group working for the tariff, as he will reap the benefits either way (Eatwell & Olson, 1989). A barrier that exists when attempting to organize or participate in collective action is that many groups can't always organize collective action, including unemployed, impoverished, consumers and most taxpayers. However, these barriers can be overcome with strong leadership and tactics like selective incentives, punishing or rewarding someone based on their individual actions, typically to prevent free riders. Since the betterment of a group benefits all, some may not participate in collective action at all, and just wait for the benefits. Selective incentives however, either reward participants or punish nonparticipants, incentivising action. Labor Unions used these incentives as 'closed shop' and 'picket line methods (Eatwell & Olson, 1989). Unions often make membership a requirement for employment and control the supply of labor during strikes. Studies find that the two largest predictors of collective action being successful are if the number of parties are small, and if the groups have access to selective incentives (Eatwell & Olson, 1989). The exact implementation of selective incentives by groups and organizations is not a clear and simple path, but it's undeniable that doing so will be instrumental to fighting climate change.

Social changes invariably seem to involve crowd events, as has happened numerous times throughout history (Eatwell & Olson, 1989). The issue arises in organizing events with large numbers of people that challenge existing governmental and corporate forces. With large groups, using selective incentives becomes crucial, and it's important that all citizens are aware of the complexity of climate change, the influence of certain parties, and the selective incentives offered for people. Therefore education is a crucial proponent for change. It has been proven to be very important in changing beliefs and actions, changing beliefs leads to increased support for public action (van der Linden et al., 2015). As has been discussed earlier, knowledge does not always lead to action however, and feelings of hope and boredom predict motivation to act more than anxiety and helplessness (Geiger et al., 2021). Educational efforts must not just inform people about the climate crisis but motivate them towards engaging in collective action, otherwise they may be aware and even concerned, but that's unimportant if they do not act upon it.

Harnessing the power of collective action in order to address the climate crisis seems like a distant proposition, but it may be the best hope we have. There is no 'silver bullet' to fix climate change. There is no single set of actions you as an individual can take to end the crisis, however, with a greater knowledge of the ways our brains work, group organization and the forces that work against change, we can have a better chance at tackling the climate crisis and ensuring a better future for all.

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